FLIGHT SUMMARY REPORT

Flight Number: 97-002

Calendar/Julian Date: 07 October 1996 • 281

Sensor Package: Wild-Heerbrugg RC-10
Airborne Visible and Infrared Imaging Spectrometer (AVIRIS)

Area(s) Covered: White Mountains, CA;
Scottsdale/Patagonia, AZ

Investigator(s): Ernst, Stanford U.; Orr City of Scottsdale; Clark, USGS

Aircraft #: 708

SENSOR DATA

Accession #:	05131	-----
Sensor ID #:	026	099
Sensor Type:	RC-10	AVIRIS
Focal Length:	12” 304.97 mm	-----
Film Type:	Aerochrome IR SO-134	-----
Filtration:	Wratten 12	-----
Spectral Band:	510-900 nm	-----
f Stop:	11	-----
Shutter Speed:	1/300	-----
# of Frames:	96	-----
% Overlap:	60	-----
Quality:	Fair	-----

Remarks:

Airborne Science and Applications Program

The Airborne Science and Applications Program (ASAP) is supported by three ER-2 high altitude Earth Resources Survey aircraft. These aircraft are operated by the High Altitude Missions Branch at NASA-Ames Research Center, Moffett Field, California. The ER-2s are used as readily deployable high altitude sensor platforms to collect remote sensing and in situ data on earth resources, celestial phenomena, atmospheric dynamics, and oceanic processes. Additionally, these aircraft are used for electronic sensor research and development and satellite investigative support.

The ER-2s are flown from various deployment sites in support of scientific research sponsored by NASA and other federal, state, university, and industry investigators. Data are collected from deployment sites in Kansas, Texas, Virginia, Florida, and Alaska. Cooperative international scientific projects have deployed the aircraft to sites in Great Britain, Australia, Chile, and Norway.

Photographic and digital imaging sensors are flown aboard the ER-2s in support of research objectives defined by the sponsoring investigators. High resolution mapping cameras and digital multispectral imaging sensors are utilized in a variety of configurations in the ER-2s' four pressurized experiment compartments. The following provides a description of the digital multispectral sensor(s) and camera(s) used for data collection during this flight.

Airborne Visible and Infrared Imaging Spectrometer

The Airborne Visible and Infrared Imaging Spectrometer (AVIRIS) is the second in the series of imaging spectrometer instruments developed at the Jet Propulsion Laboratory (JPL) for earth remote sensing. This instrument uses scanning optics and four spectrometers to image a 614 pixel swath simultaneously in 224 contiguous spectral bands (0.4-2.4 mm).

AVIRIS parameters are as follows:

IFOV:	1 mrad
Ground Resolution:	66 feet (20 meters) at 65,000 feet
Total Scan Angle:	30°
Swath Width:	5.7 nmi (10.6 km) at 65,000 feet
Spectral Coverage:	0.41-2.45 mm
Pixels/Scan Line:	614
Number of Spectral Bands:	224
Digitization:	10-bits
Data Rate:	17 MBPS

Spectrometer	Wavelength Range	Number of Bands	Sampling Interval
1	0.41 - 0.70 mm	31	9.4 nm
2	0.68 - 1.27 mm	63	9.4 nm
3	1.25 - 1.86 mm	63	9.7 nm
4	1.84 - 2.45 mm	63	9.7 nm

All AVIRIS data is decommutated and archived at JPL and not currently available for public distribution. For further information contact Rob Green at Jet Propulsion Laboratory, 4800 Oak Grove Drive, Mail Stop 183-501, Pasadena, California 91109-8099.

Camera Systems

Various camera systems and films are used for photographic data collection. Film types include high definition color infrared, natural color, and black and white emulsions. Available photographic systems are as follows:

- Wild-Heerbrugg RC-10 metric mapping camera
  - 9 x 9 inch film format
  - 6 inch focal length lens provides area coverage of 16 x 16 nautical miles from 65,000 feet
  - 12 inch focal length lens provides area coverage of 8 x 8 nautical miles from 65,000 feet

- Hycon HR-732 large scale mapping camera
  - 9 x 18 inch film format
  - 24 inch focal length lens provides area coverage of 4 x 8 nautical miles from 65,000 feet

- IRIS II Panoramic camera
  - 4.5 x 34.7 inch film format
  - 24 inch focal length lens
  - 90 degree field of view provides area coverage of 2 x 21.4 nautical miles from 65,000 feet

The U.S. Geological Survey's EROS Data Center at Sioux Falls, South Dakota serves as the archive and product distribution facility for NASA-Ames aircraft acquired photographic and digital imagery. For information regarding photography and digital data (including areas of coverage, products, and product costs) contact EROS Data Center, Customer Services, Sioux Falls, South Dakota 57198 (Telephone: 605-594-6151).

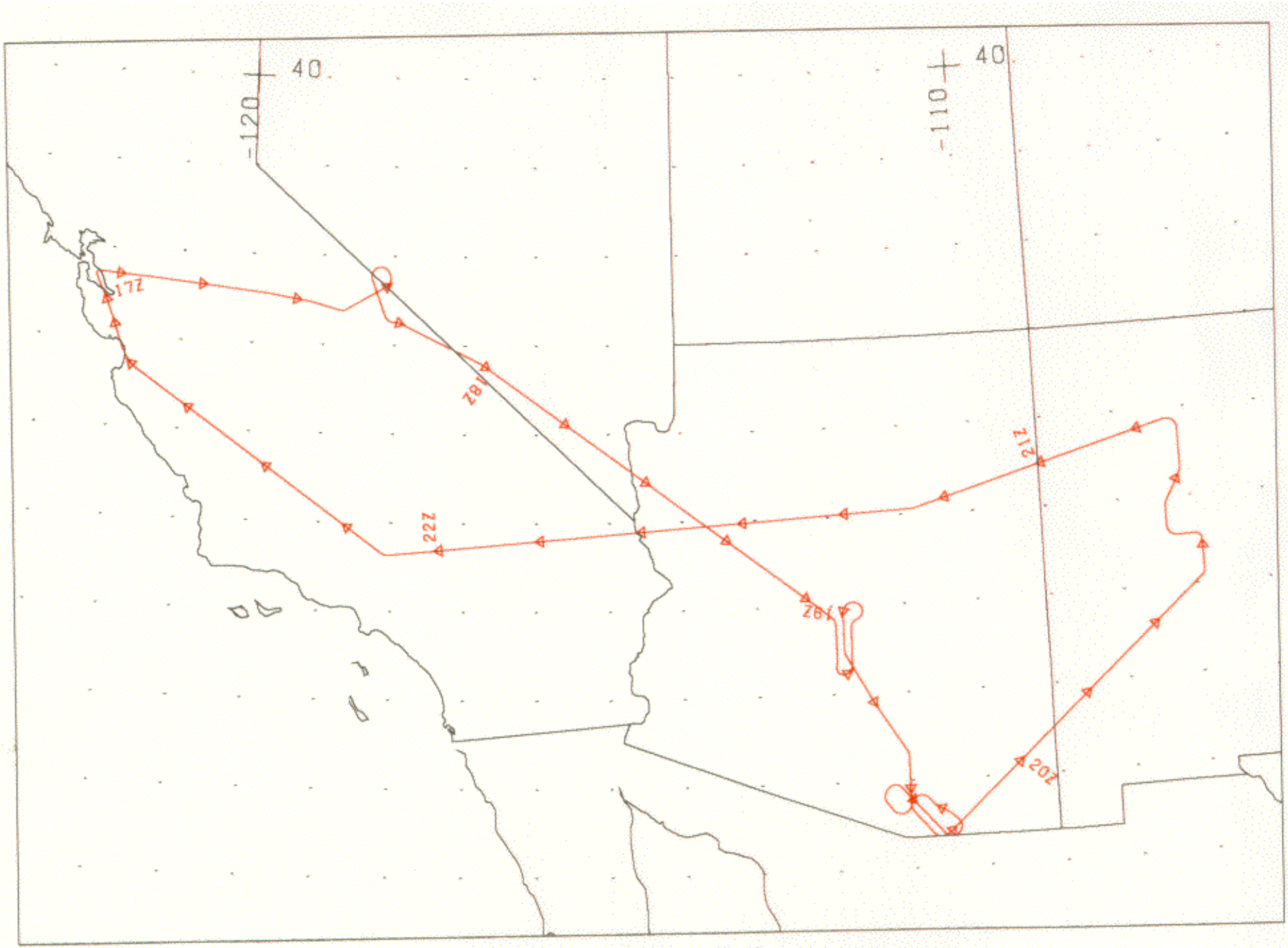
Additional information regarding ER-2 acquired photographic and digital data is available through the Aircraft Data Facility at Ames Research Center. For specific information regarding flight documentation, sensor parameters, and areas of coverage contact the Aircraft Data Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: 415-604-6252).

CAMERA FLIGHT LINE DATA
FLIGHT NO. 97-002

Accession # 05131

Sensor # 026

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	2749-2756	17:36:39	17:40:01	62375/19012	Clear
C - D	2757-2765	17:44:52	17:48:42	63300/19294	Clear; oblique (frame 2765)
E - F	2766-2774	18:44:26	18:48:11	65433/19944	Clear; oblique (frames 2766 and 2773)
G - H	2775-2783	18:51:24	18:55:09	65389/19931	Clear; oblique (frame 2783)
I - J	2784-2792	19:00:35	19:04:20	65300/19903	Clear; oblique (frame 2792)
K - L	2793-2802	19:17:39	19:21:51	65940/20099	Clear; oblique (frame 2802)
M - N	2803-2816	19:28:30	19:34:34	65514/19969	Clear
L - O	2817-2824	19:44:31	19:47:47	65475/19957	Clear; oblique (frame 2817)
P - Q	2825-2831	20:27:54	20:30:41	66743/20343	Clear; oblique (frame 2831)
R - S	2832-2838	20:34:18	20:37:05	66186/20173	Clear; oblique (frames 2832-2833 and 2838)
T - U	2839-2844	20:42:48	20:45:07	66517/20274	Clear



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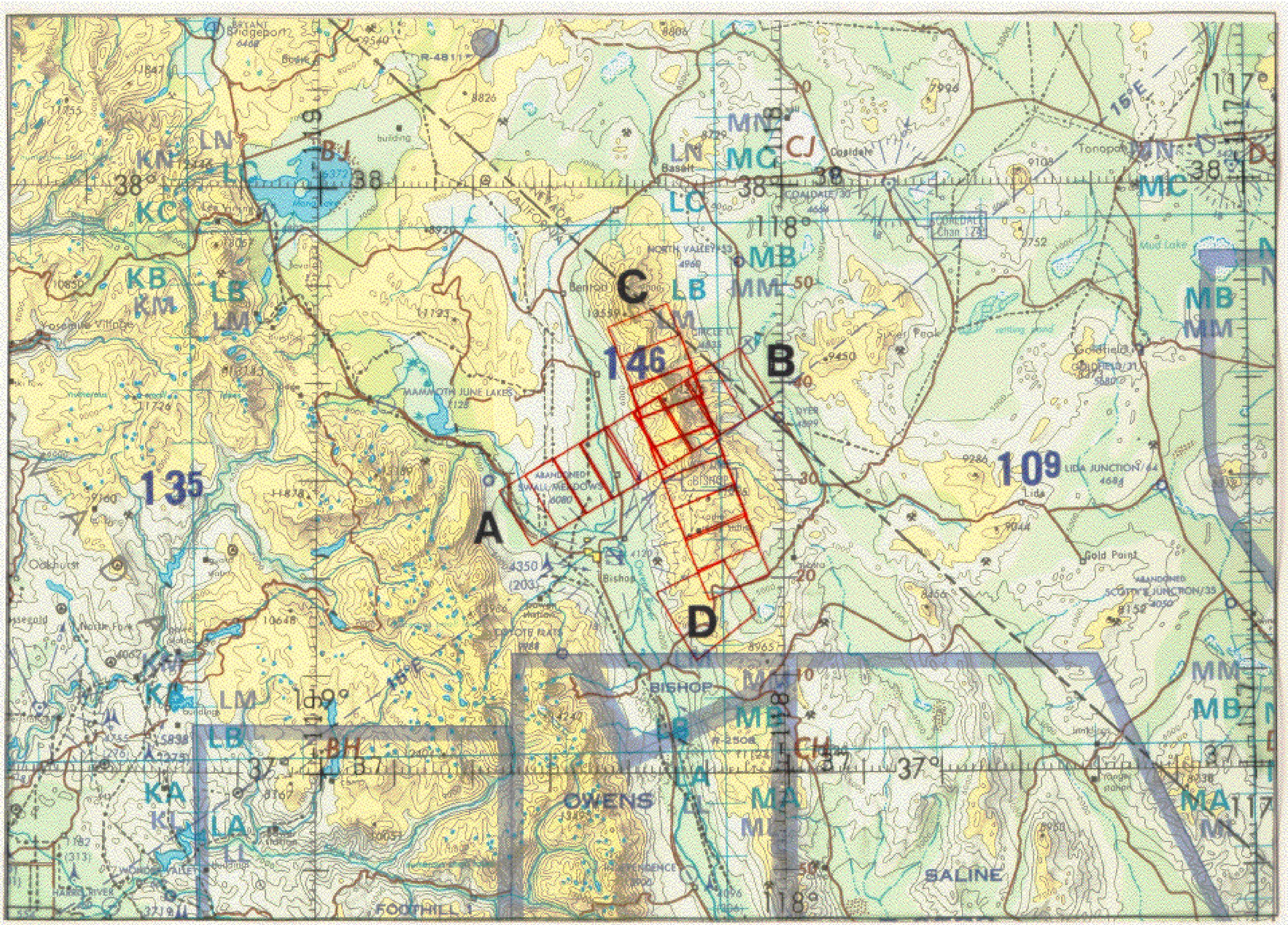
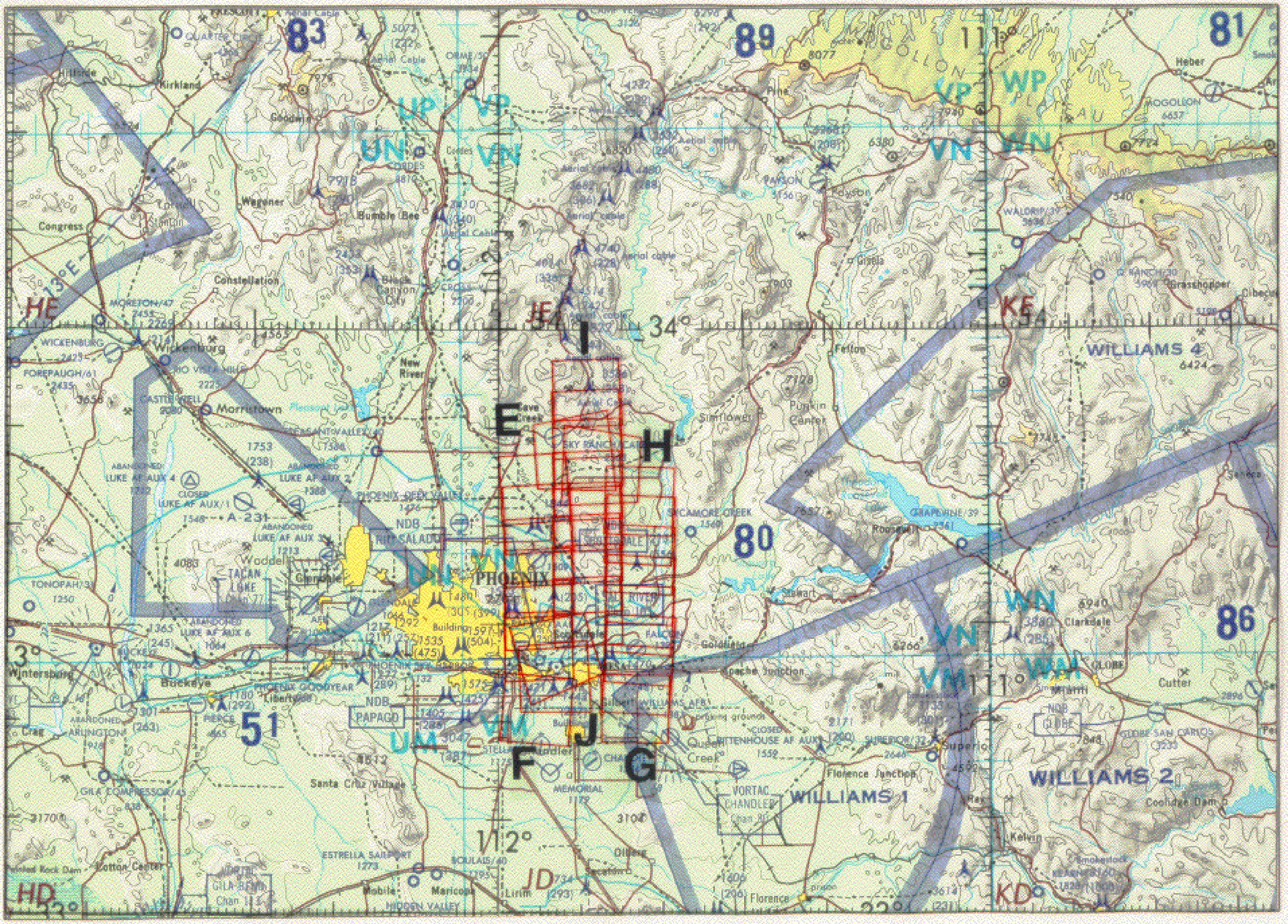
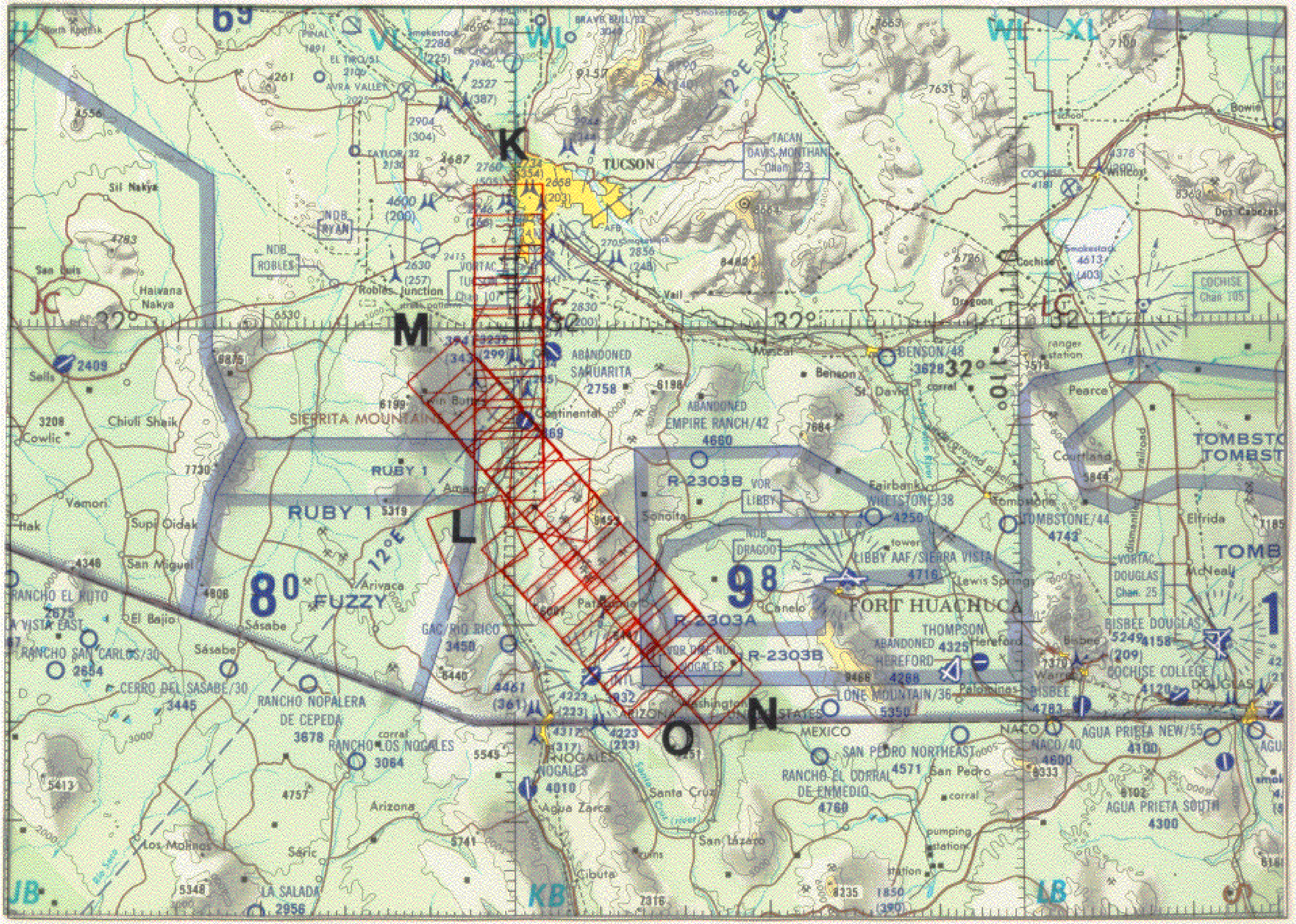


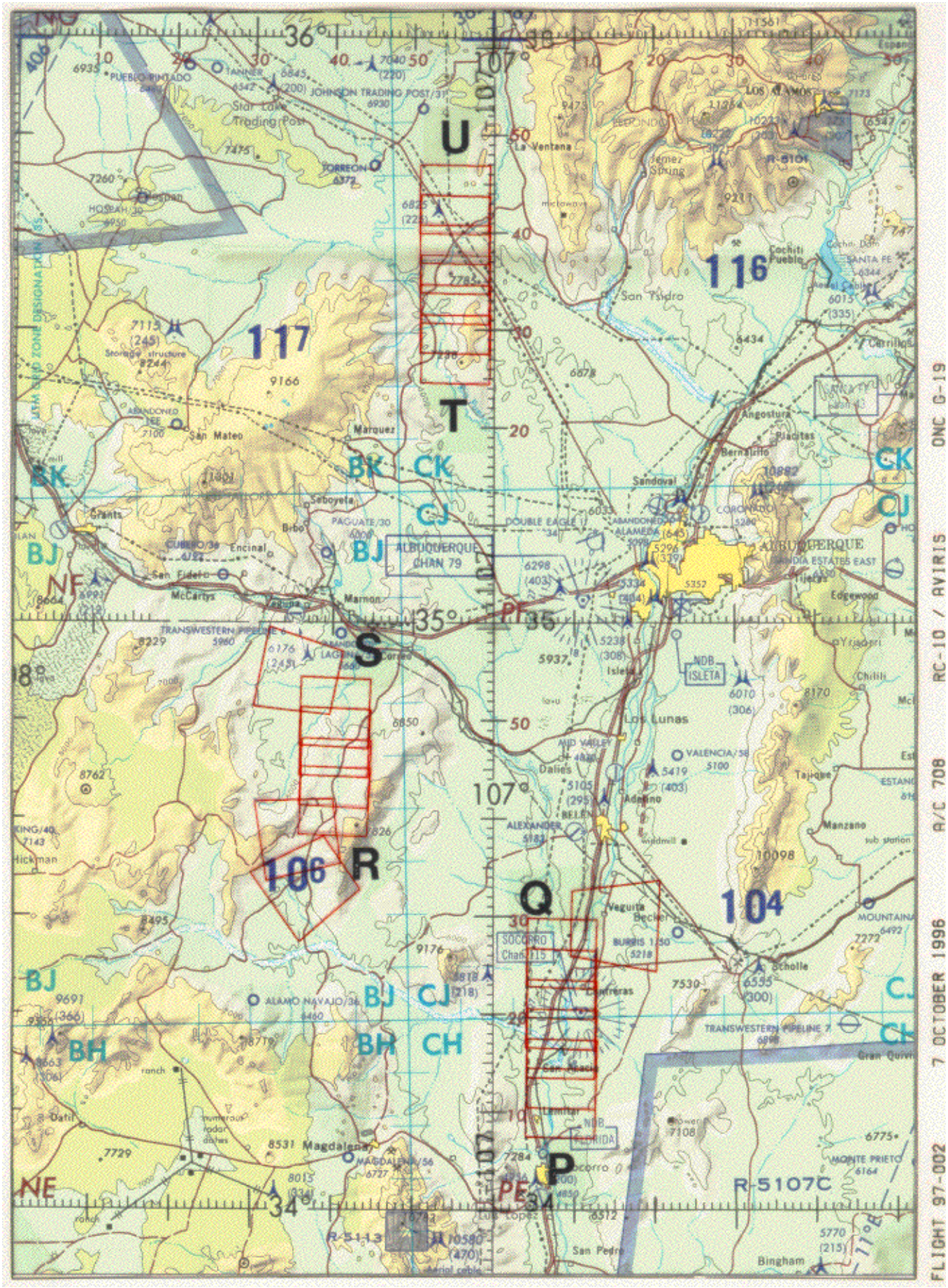
FLIGHT 97-002 7 OCTOBER 1996 A/C 708 RC-10 / AVIRIS ONC G-18



FLIGHT 97-002 7 OCTOBER 1996 A/C 708 RC-10 / AVIRIS ONC G-19



FLIGHT 97-002 7 OCTOBER 1996 A/C 708 RC-10 / AVIRIS ONC G-19


U
T
S
R
Q
P
116
117
106
104
ALBUQUERQUE CHAN 79
SOCORRO Chan 115
R-5107C
R-5113
FLIGHT 97-002 7 OCTOBER 1996 A/C 708 RC-10 / AVIRIS ONC G-19